ABSTRACT OF THE DISCLOSURE

[0130] An implantable microstimulator configured to be implanted beneath a patient's skin for tissue stimulation to prevent and/or treat various disorders, e.g., neurological disorders, uses a self-contained power source such as a primary battery, a rechargeable battery, or other energy sources. For the rechargeable battery, and other energy sources that may require a periodic or occasional replenishment, such recharging or replenishment is accomplished, for example, by inductive coupling with an external device. A suitable bidirectional telemetry link allows the microstimulator system to inform the patient or clinician regarding the status of the system, including the charge level of the power source, and stimulation parameter states. Processing circuitry within the microstimulator automatically controls the applied stimulation pulses to match a set of programmed stimulation parameters established for a particular patient. The microstimulator preferably has a cylindrical hermetically sealed case having a length no greater than about 27mm and a diameter no greater than about 3.3mm. A reference electrode is located on one end of the case and an active electrode is located on the other end of the case. Further, the case is externally coated on selected areas with conductive and non-conductive materials.